COMPUTERS & EDUCATION

An International Journal

Editors:
Rachelle S. Heller The George Washington University
Jean D. M. Underwood The Nottingham Trent University

Volume Contents and Author Index

VOLUME 32

1999

PERGAMON

COMPUTERS & EDUCATION

EDITORS

Professor RACHELLE S. HELLER
Department of Electrical Engineering
and Computer Science
The George Washington University
Washington, DC 20052, U.S.A.
Fax: +1 202 994 0227
e-mail: sheller@seas.gwu.edu

Professor JEAN D. M. UNDERWOOD
Department of Social Sciences
Division of Psychology
The Nottingham Trent University
Burton Street
Nottingham NG1 4BU, U.K.
e-mail: com&ed@ntu.ac.uk
jean.underwood@ntu.ac.uk

EDITORIAL ADVISORY BOARD

A. A. Pouring, U.S.A. (Founder Editor)
D. F. Rogers, U.S.A. (Founder Editor)
P. R. Smith†, U.K. (Founder Editor)

A. Bartlomé, Spain
J. Chew, Singapore
D. Clements, U.S.A.
B. Collis, The Netherlands
T. Downes, Australia
J. Gal-Ezer, Israel
M. Gigante, Australia
J. R. Hartley, U.K.
B. Kurshan, U.S.A.
E. Lehtinen, Finland
T. Plomp, The Netherlands
T. Sakamoto, Japan
I. Sanders, South Africa
P. Scrimshaw, U.K.
D. Squires, U.K.
W. Tagg, U.K.
D. J. Thompson, U.S.A.

European Book Review Editor: Professor David Hawkridge, Institute of Educational Technology, The Open University, Milton Keynes MK7 6AA, U.K.

U.S. Book Review Editor: Professor Joyce Little, Department of Computer and Information Sciences, Towson State University, Baltimore, MD 21204, U.S.A.

Author Service Department: For queries relating to the general submission of articles (including electronic text and artwork) and the status of accepted manuscripts, please contact the Author Service Department: e-mail: authors@elsevier.co.uk; Fax: +44 (0) 1865 843905; Tel.: +44 (0) 1865 843900.

Subscription Rates

Publication information: *Computers and Education* (ISSN 0360-1315). For 1999, volumes 32–33 are scheduled for publication. Subscription prices are available upon request from the Publisher or from the Regional Sales Office nearest you or from this journal's website (http://www.elsevier.nl/locate/compedu). Further information is available on this journal and other Elsevier Science products through Elsevier's website: (http://www.elsevier.nl). Subscriptions are accepted on a prepaid basis only and are entered on a calendar year basis. Issues are sent by standard mail (surface within Europe, air delivery outside Europe). Priority rates are available upon request. Claims for missing issues should be made within six months of the date of dispatch.

Advertising information: Advertising orders and enquiries can be sent to: **USA, Canada and South America**: Mr Tino DeCarlo, The Advertising Department, Elsevier Science Inc., 655 Avenue of the Americas, New York, NY 10010-5107, USA; phone: (+1) (212) 633 3815; fax: (+1) (212) 633 3820; e-mail: t.decarlo@elsevier.com. **Japan**: The Advertising Department, Elsevier Science K.K., 9-15 Higashi-Azabu 1-chome, Minato-ku, Tokyo 106-0044, Japan; phone: (+81) (3) 5561 5033; fax: (+81) (3) 5561 5047. **Europe and ROW**: Rachel Gresle-Farthing, The Advertising Department, Elsevier Science Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK; phone: (+44) (1865) 843565; fax: (+44) (1865) 843976; e-mail: r.gresle-farthing@elsevier.co.uk

Published 8 issues/annum (2 volumes) in January, February, April, May, August, September, November, December

© 1999 Elsevier Science Ltd. All rights reserved

Periodicals postage is paid at Rahway, NJ. *Computers and Education* (ISSN 0360-1315) is published 8 issues a year in January, February, April, may, August, September, November and December by Elsevier Science Ltd., The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, UK. The US subscription price is $1003.00 per year.
POSTMASTER: Send address corrections to: *Computers and Education*, Elsevier Science, Customer Support Department, PO Box 945, New York, NY 10159-0945.
Distributed in the USA by Mercury Airfreight International, 365 Blair Road, Avenel, NJ 07001.

CONTENTS

Number 1

Siu-Cheung Kong and Lam-For Kwok	1	An interactive teaching and learning environment for graph sketching
P. A. Brett and M. Nash	19	Multimedia language learning courseware: a design solution to the production of a series of CD-ROMs
Nadia Catenazzi and Lorenzo Sommaruga	35	The evaluation of the Hyper Apuntes interactive learning environment
Maria Emilia Xavier Mendes and Wendy Hall	51	Hyper-authoring for education: a qualitative evaluation
Judy A. van Biljon, C. Janse Tolmie and Johan P. du Plessis	65	Magix—an ICAE system for Problem-Based Learning
Alan F. Smeaton and Gary Keogh	83	An analysis of the use of virtual delivery of undergraduate lectures

Number 2

Lynnette Taylor	95	An integrated learning system and its effect on examination performance in mathematics
Ron C. W. Kwok and Jian Ma	109	Use of a group support system for collaborative assessment
Jack V. Powell	127	Interrelationships between importance, knowledge and attitude of the inexperienced
Fabio Tamburini	137	A multimedia framework for second language teaching in self-access environments
Cindy Hmelo and Roger Day	151	Contextualized questioning to scaffold learning from simulations
Greg C. Lee and Jackie C. Wu	165	Debug It: A debugging practicing system
Julia Phelps and Ross Reynolds	181	Formative evaluation of a Web-based course in meteorology
	195	Book Reviews

Number 3

N. Washington, M. Parnianpour and J. M. Fraser	207	Evaluation and assessment of a biomechanics computer-aided instruction
John Pearson	221	Electronic networking in initial teacher education: is a virtual faculty of education possible?
Cheng-Chih Wu and Greg C. Lee	239	Use of BBS to facilitate a teaching practicum course
Lam-for Kwok, Chi-kuen Lau and Sun-wai Fung	249	Evaluating SAMS in Hong Kong schools

Number 4

Jorma Sajaniemi and Marja Kuittinen	269	Three-level teaching material for computer-aided lecturing
Stavros Demetriadis, Athanasios Karoulis and Andreas Pombortsis	285	"Graphical" Jogthrough: expert based methodology for user interface evaluation, applied in the case of an educational simulation interface
Md. Mahbubur Rahim, Afzaal H. Seyal and Mohd. Noah Abd. Rahman	301	Software piracy among computing students: a Bruneian scenario